ABSTRACT

~~The invention relates to a~~ A flexible pipe for transporting a fluid in a marine environment[[,]]. ~~the~~ The pipe ~~comprising a)~~ comprises a liner ~~(1)~~ for confining the fluid, ~~to be transported by the pipe, b)~~ an armouring layer ~~(3)~~ surrounding the liner, ~~c)~~ and an outer protective sheath ~~(5)~~ surrounding the armouring layer~~. The invention further relates to a method of manufacturing a flexible pipe. The object of the present invention is to provide a flexible pipe with an outer protective sheath that allows a~~ and allowing radial expansion and contraction of the armouring layers ~~of the pipe~~. The ~~problem is solved in that the~~ outer protective sheath comprises at least two protective layers ~~(51, 52)~~ of helically wound composite wires ~~(53), the at least two layers being wound~~ with essentially opposite winding angles and ~~being~~ locally held together, ~~(55). This has the advantage of~~ providing a relatively flexible[[,]] yet fixed structure of the outer sheath. ~~This is e.g. achieved in that the~~ The outer sheath is held together in an array of discrete spots or along linear or curved paths. ~~The flexibility~~ Flexibility is maintained because the stiffness in shear in the wires of adjacent protective layers may be made much larger ~~(e.g. 5 to 10 times larger)~~ in ~~the~~ areas being locally held together than outside these areas. This allows a change of angles between the wires of two adjacent layers of the outer protective sheath during elongation or shortening of the pipe. ~~The invention may e.g. be used for the transport of pressurized liquids and gases (e.g. hydrocarbons, water, etc.), e.g. at elevated temperatures, in marine environments.~~

~~(Fig. 3 should be published)~~